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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/781,644	02/20/2004	Won nam Kang	1751-301.CON	3455

6449 7590 12/20/2005

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EXAMINER

TALBOT, BRIAN K

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 12/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/781,644	KANG ET AL.	
	Examiner	Art Unit	
	Brian K. Talbot	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/4/05</u> . | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1762

1. The amendment filed 10/4/05 has been considered and entered. Claims 2-8 have been added. Claims 1-8 remain in the application.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. The Finality of the previous Office Action has been withdrawn.

Affadavit/Declaration

4. The Affidavit/Declaration filed on 10/4/05 under 37 CFR 1.131 has been considered but is ineffective to overcome the Cheong et al. (6,878,420) reference.

The evidence submitted is insufficient to establish a reduction to practice of the invention in this country or a NAFTA or WTO member country prior to the effective date of the March 12, 2001 reference.

The evidence submitted is insufficient to establish a conception of the invention prior to the effective date of the Cheong et al. (6,878,420) reference. While conception is the mental part of the inventive act, it must be capable of proof, such as by demonstrative evidence or by a complete disclosure to another. Conception is more than a vague idea of how to solve a problem. The requisite means themselves and their interaction must also be comprehended. See *Mergenthaler v. Scudder*, 1897 C.D. 724, 81 O.G. 1417 (D.C. Cir. 1897).

The evidence submitted is insufficient to establish diligence from a date prior to the date of reduction to practice of the Cheong et al. (6,878,420) reference to either a constructive reduction to practice or an actual reduction to practice. No time line or accounting activity has been provided to show evidence for diligence from point of conception to filing of Application.

Hence the rejection concerning the Cheong et al. (6,878,420) is maintained.

Claim Rejections - 35 USC § 103

5. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Finnemore et al. (6,514,557 B2) in combination with Cheong et al. (6,878,420).

Finnemore et al. (6,514,557 B2) teaches synthesis of superconducting magnesium diboride objects. Boron objects are reacted with magnesium vapor for a predetermined time and temperature to form a magnesium diboride object (see abstract). The boron object can be a wire, filament or boron film atop a substrate heated up to near 950°C and then cooled to form the MgB₂ object. The process to form the film is by pulsed laser deposition (Figs. 1a,1b, col. 3, lines 35-47 and claims 9-11). The chamber for which the heating is performed is a tantalum tube on the inside and sealed with quartz on the outside and the heating is performed in an inert atmosphere (col. 2, lines 6-18). Finnemore et al. (6,514,557 B2) teaches sealing the boride film in an inert tube and sealing the inert tube in quartz (see Fig. 1b). The heating time varies dependent upon the thickness of the boron film and it less than 120 minutes. The substrate can be strontium titanate and the heating time can be as low as 30 minutes for a one micrometer boron film (col. 3, lines 35-45).

Finnemore et al. (6,514,557 B2) fails to teach the substrate being monocrystalline strontium titanate.

Cheong et al. (6,878,420) teaches MGB2 superconductors whereby MGB2 is applied to a crystalline substrate by pulsed laser deposition. The crystalline substrate enables the growth of the MGB2 film to be crystalline as the grown film closely matches the crystal structure of the substrate. The substrate is sapphire or strontium titanate (col. 2, lines 20-65).

Therefore, it would have been obvious for one skilled in the art at the time the invention was made to have modified Finnemore et al. (6,514,557 B2) process by utilizing a crystalline substrate as evidenced by Cheong et al. (6,878,420) with the expectation of achieving a crystalline coating having a higher critical density as a result of the crystalline nature of the substrate.

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Finnemore et al. (6,514,557 B2) alone.

Finnemore et al. (6,514,557 B2) fails to teach monocrystalline strontium titanate as the substrate.

While the Examiner acknowledges this fact, it is the Examiner's position that one skilled in the art at the time the invention was made would have had a reasonable expectation of achieving similar success with monocrystalline strontium titanate as evidenced by the teaching of Finnemore et al. (6,514,557 B2). Finnemore et al. (6,514,557 B2) broadly teaches strontium titanate which would be inclusive of monocrystalline, polycrystalline or amorphous structures. In the absence of a showing of unexpected results with regards to the particular substrate's

Art Unit: 1762

structure, it is the Examiner's position that one skilled in the art would have had a reasonable expectation of success with the claimed monocrystalline structure.

Response to Amendment

6. Applicant's arguments filed 10/4/05 have been fully considered but they are not persuasive.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian K. Talbot whose telephone number is (571) 272-1428. The examiner can normally be reached on Monday-Friday 6AM-3PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy H. Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1762

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Brian K Talbot
Primary Examiner
Art Unit 1762

BKT